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FAUNISTIC NOTE

Spanioneura fonscolombii (Hemiptera: Psylloidea) a new jumping plant-lice for Romania fauna

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Abstract

Boxwood (*Buxus sempervirens*) is a host for several mite and insect pests, but the species of plant-parasitic psyllid *Spanioneura fonscolombii* has been observed in Romania for the first time in 2017. Subsequent research has shown that the species is much more spread, our data confirming its presence in western, eastern, and southern Romania. This is also the most south-eastern record of the species in Europe.

Keywords

Psyllidae, Romania, distribution, first record.

The Psylloidea is a superfamily of true bugs (Hemiptera) and most of them bear the common name jumping plant-lice, with ca. 4.000 species described in more than 200 genera worldwide (Percy et al. 2018; Ouvrard 2022; Nakabachi 2022) and almost 400 species in Europe (Burckhardt 2022). They can be mistaken for leafhoppers (*Auchenorrhyncha*) but are easy to separate from those by the following characteristics: more complex wing venation, two-segmented tarsi, and long, multi-segmented

antennae (Martin and Webb 1999). The largest family is Psyllidae, having well over 1100 species in 69 genera (Percy et al. 2018).

Spanioneura genus contains 13 holarctic species (Drohojowska and Burckhardt 2014; Burckhardt 2021; Ouvrard 2022), associated with:

- Buxaceae (*Buxus sempervirens*)

  Spanioneura buxi (Linnaeus, 1758), *S. caucasica* Loginova, 1968, *S. chujoi* (Miyatake, 1982), *S. fonscolombii* Foerster, 1848 (type species of the genus)

-Rosaceae (*Prunus dulcis*)

  S. longicauda (Konovalova, 1986), *S. morimotoi* (Miyatake, 1963), *S. omogoensis* (Miyatake, 1963), *S. pechai* (Klimaszewski & Lodos, 1977), *S. persica* Burckhardt & Lauterer, 1993, *S. sanguinea* (Provancher, 1872), and *S. turkiana* (Klimaszewski & Lodos, 1977), *S. yasumatsui* (Miyatake, 1963), and *S. ziozankeana* (Kuwayama, 1908).

The genus name derives from "*spanios*" (gr. adj.) = scarce and "neuron(-i)" (gr. *noun)* = nerve, scarce nervation. The species *S. fonscolombii* is named in honor of Étienne Laurent Joseph Hippolyte Boyer de Fonscolombe, a French entomologist (Tuthill 1943).

S. fonscolombii is a species that originated from the Mediterranean region (Wittenberg 2005) but has a predominantly Western European distribution in Europe is known from Belgium, France, Great Britain, Ireland, Italy, Luxembourg, Slovenia, Spain, Sweden, and Switzerland (Burckhardt 2022; Conci et al. 1992; Gertsson 2015; Hodkinson and White 1979; Martin and Webb 1999; Rapisarda et al. 2022; Seljak 2006). It was collected for the first time in 2009 by A. Sonnemans in the Netherlands, and then in a few years it was dispersed all over the country (den Bieman et al 2019). In 2011 and 2012 it was observed for the first time in Sweden and in the Nordic countries (Gertsson 2015). Also, in June and July 2011, it was found for the first time in Ireland (O'Connor and Malumphy 2011).

Reports from outside Europe are in the USA (introduced) (Hodkinson 1988; Conci et al 1992) and Australia in 2021 by the Australian Government's Department of Agriculture and Water (DAWE). Britton reported in the USA notably in Connecticut in 1916 and is mentioned in the Checklist of the insects of Connecticut (Britton 1920) and in Massachusetts (Hodkinson 1988).

The food plant of this oligophagous species is mostly *B. sempervirens* (Hodkinson and White 1979; Conci et al 1992; Seljak 2006; Bieman 2019). The pale-green nymphs are coated in a white and silky wax (Scott 1879). The nymphs deform the leaves in a typical way-thickened and strongly concave. These deformed leaves can be confused with leaves deformed by *Spanioneura buxi*, the only other psyllid from this area that specializes in this hostplant but can be distinguished from *S. fonscolombii* by the tip of the abdomen, which is orange and lacks dark spots and yellowing on the wing cells.

It has one generation per year and overwinters in the adult stage on the host plant or in the litter on the ground and does not migrate (Bieman 2019; Seljak 2020; Rapisarda et al. 2022).

S. fonscolombii has the potential to cause negative economic consequences in Australia (DAWE 2020) because sucks on plant sap and causes damage similar to *S. buxi* (Gertsson, 2015), which produces galls or distorted leaves (Hodkinson 2009; O'Connor and Malumphy 2011), may also be considered as alien in Slovenia, as they are associated with the host plants introduced or spread into Slovenia a very long time ago (Seljak 2020). In Switzerland, *S. fonscolombii* is on the list of invasive alien species (Wittenberg 2005).

In Romania, this species was observed for the first time in 2017 in the northeastern part, and later in 2022 was found also in the west and the south of the country, which confirms its rapid spread and establishment in locations far from each other (Fig. 1).

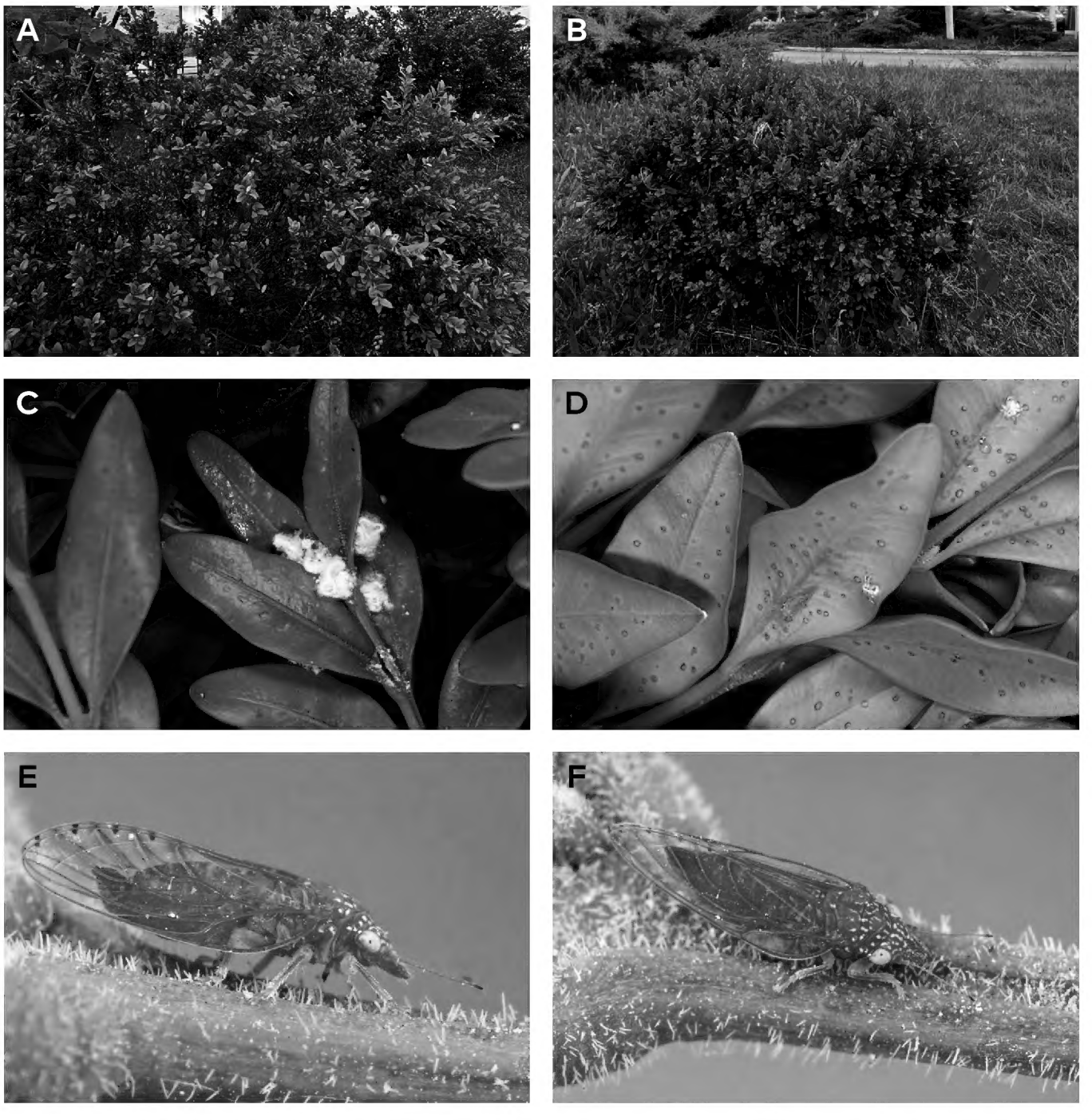

Figure 1. **A** and **B** Bush of *Buxus sempervirens* with *Spanioneura fonscolombii* in Timiș county - Fibis (**A**) and Bucovăț (**B**); **C** Aspect of the superior face of leaves and nymphs of *Spanioneura fonscolombii* in Bucovăț; **D** Aspect of the inferior face of the leaves showing feeding traces and exuviae of nymph in Bucovăț; **E** and **F** Adults of *Spanioneura fonscolombii* Iași county, Stânca. (Photo **A** to **D** by Florin Prunar; **E** and **F** by Cosmin-Ovidiu Manci).

Samples of psyllids were collected together with the host plant in a plastic ziplock bag. Preserved specimens were investigated with a stereomicroscope and photographed, and afterward stored in ethanol (100%) for studies.

For adult identification and the morphological terminology used in this paper follows Hodkinson and White (1979), Dobreanu and Manolache (1962), Rapisarda et al. (2022), and description of the nymph from Scott (1879).

A distinctive pale yellow or green psyllid with an elongate pointed forewing, apex of wing usually rounded and dark spots at the apices of four cells. The forewing cells are yellowish, especially near the veins, which themselves are yellow and/or green. The legs and antennae are darkened distally. Adults have a length of 2.5–3 mm.

Sample locations

1. Stânca, Iași county, 47.069823 N 27.804024 E, 21st of August 2017.
2. Mihai Bravu, Giurgiu county, host plant apparently healthy located near the road; coordinates 44.1393346 N 26.053505 E, 22nd of May 2022.
3. Beiuș, Bihor county, very abundant on the host plant, 46.666972690 N 22.344541980 E, 31st of May 2022, large bushes over 2 m high.

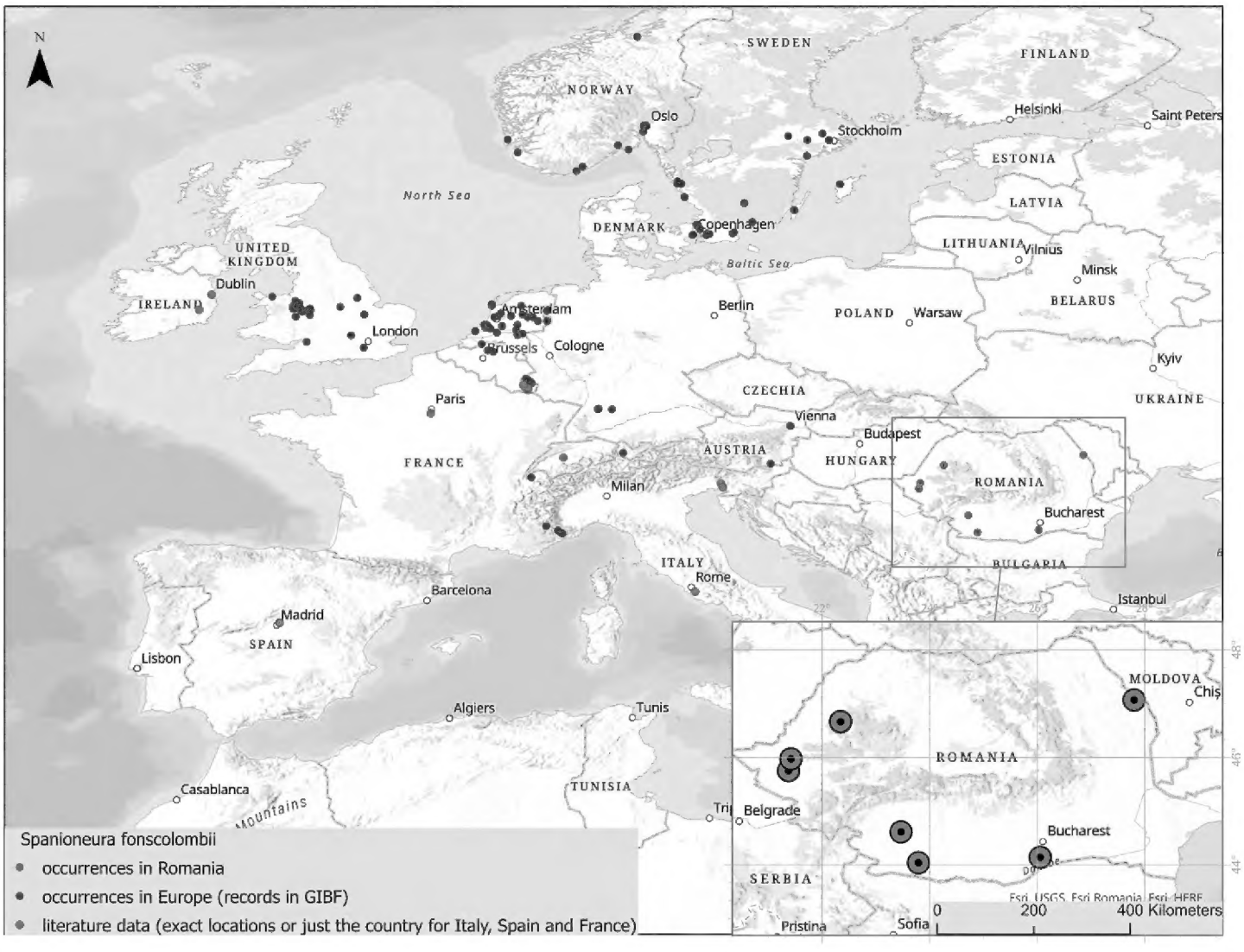

Figure 2. The distribution map of *Spanioneura fonscolombii* in Europe and new data for Romania (red dots = new occurrences).

4. Bucovăț, Timiș county, 45.753463 N 21.378565 E, 26th of May 2022, a single small bush of *Buxus* on the side of the road.
5. Fibiș, Timiș county, 45.973786820 N 21.422209040 E, 2nd of June 2022, *Buxus* bushes over 1.5 high in a square of public green space on the side of the road.
6. Gângiova, Dolj county, 43.89349301 N 23.85870463 E, 18th of March 2023, long lines of buxus bushes in the village park.
7. Beharca, Dolj county, 44.446960 N, 23.681384 E, 19th of March 2023, short lines of buxus around the parking of a boarding house.

Comparatively with the locations data from GIBF and the current bibliographic mentions of the species, the new locations from Romania confirm the expansion of the range area towards the southeast (Fig. 2).

References

Britton WE (1920) Check-list of the Insects of Connecticut. State Geological and Natural History Survey, 397 pp.

Burckhardt D, Ouvrard D, Percy DM (2021) An updated classification of the jumping plant-lice (Hemiptera: Psylloidea) integrating molecular and morphological evidence. European Journal of Taxonomy 736: 137–182. https://doi.org/10.5852/ejt.2021.736.1257

Burckhardt D (2022) Fauna Europaea: Psylloidea. In: Fauna Europaea, version 1.0. http://www.faunaeur.org/full_results.php?id=12489. [Accessed on 30.05.2022]

Conci C, Rapisarda C, Tamanini L (1993) Annotated catalog of the Italian Psylloidea. First part (Insecta Homoptera). Atti della Accademia Roveretana degli Agiati 7(2B): 33–135.

Den Bieman K, Malenovský I, Burckhardt D, Heijerman T (2019) First checklist of the Dutch jumping plant lice since 93 years (Hemiptera: Psylloidea). Nederlandse Faunistische Mededelingen 53: 55–118.

Dobreanu E, Manolache C (1962) Homoptera Psylloidea. Fauna Republicii Populare Romîne Insecta. vol. 8. Editura Academiei Republicii Populare Romine, Bucuresti, 376 pp.

Drohojowska J, Burckhardt D (2014) The jumping plant-lice (Hemiptera: Psylloidea) of Turkey: a checklist and new records. Turkish Journal of Zoology 38: 1–10.

Gertsson GA (2015) The jumping plant-lice Spanioneura fonscolombii Foerster (Hemiptera: Psylloidea) new to Sweden. Entomologisk Tidskrift 136 (4): 162–164. (in Swedish)

Hodkinson ID (1988) The nearctic Psylloidea (Insecta: Homoptera): an annotated check list. Journal of Natural History 22(5): 1179–1243. https://doi.org/10.1080/00222938800770751

Hodkinson ID, White IM (1979) Homoptera. Psylloidea. Handbook for the identification of British insects. Royal Entomological Society of London, London (Great Britain) 2(5a): 89 pp

Martin JH, Webb MD (1999) Hemiptera: the true bugs. In Barnard PC (Ed.) Identifying British insects and arachnids. An annotated bibliography of key works. Cambridge University Press, Cambridge: 54–75.

Nakabachi A, Inoue H, Hirose Y (2022) Microbiome analyses of 12 psyllid species of the family Psyllidae identified various bacteria including *Fukatsuia* and *Serratia symbiotica*, known as secondary symbionts of aphids. BMC microbiology 22(1): 1–21.

O'Connor JP, Malumphy C (2011) A review of the Irish jumping plant-lice (Hemiptera: Psylloidea). Bulletin of the Irish Biogeographical Society 35: 21–63

Ouvrard D (2022) Psyl'list - The World Psylloidea Database. http://www.hemiptera-databases.com/psyllist.doi:10.5519/0029634 [Accessed on 29.11.2022]

Percy DM, Crampton-Platt A, Sveinsson S, Lemmon AR, Lemmon EM, Ouvrard D, Burckhardt D (2018) Resolving the psyllid tree of life: phylogenomic analyses of the superfamily Psylloidea (Hemiptera). Systematic Entomology 43(4): 762–776.

Rapisarda C, Weigand AM, Braun P, Eickermann M (2022) First systematic inventory of the jumping plant lice of Luxembourg (Hemiptera, Sternorrhyncha, Psylloidea). Biodiversity Data Journal 10: e77571. https://doi.org/10.3897/BDJ.10.e77571

Scott J (1879) Description of the nymph of *Spanioneura fonscolombei*, Förster, family Psyllidae. Entomologist's Monthly Magazine l6: 85–86

Seljak G (2006) An overview of the current knowledge on jumping plant-lice of Slovenia (Hemiptera: Psylloidea). Acta Entomologica Slovenica 14(1): 11–34.

Seljak G (2020) Jumping Plant-lice of Slovenia (Insecta: Hemiptera: Psylloidea) Scopoli 98: 1–224.

Tuthill LD (1943) The Psyllids of America north of Mexico (Psyllidae: Homoptera). Iowa State College Journal of Science 17: 443–660.

Wittenberg R. (Ed.) (2005) An inventory of alien species and their threat to biodiversity and economy in Switzerland. CABI Bioscience Switzerland Centre report to the Swiss Agency for Environment, Forests and Landscape. The environment in practice no. 0629. Federal Office for the Environment, Bern. 155 pp.

*** Department of Agriculture, Water and the Environment (DAWE) (2021) Final Pest Risk Analysis for Cut Flower and Foliage Imports. Part 2. CC BY 3.0.

*** GBIF.org (2022) Occurrence Download https://doi.org/10.15468/dl.qven4y [Accessed on 20.10.2022]